

MICROPROCESSOR Vs MICROCONTROLLER

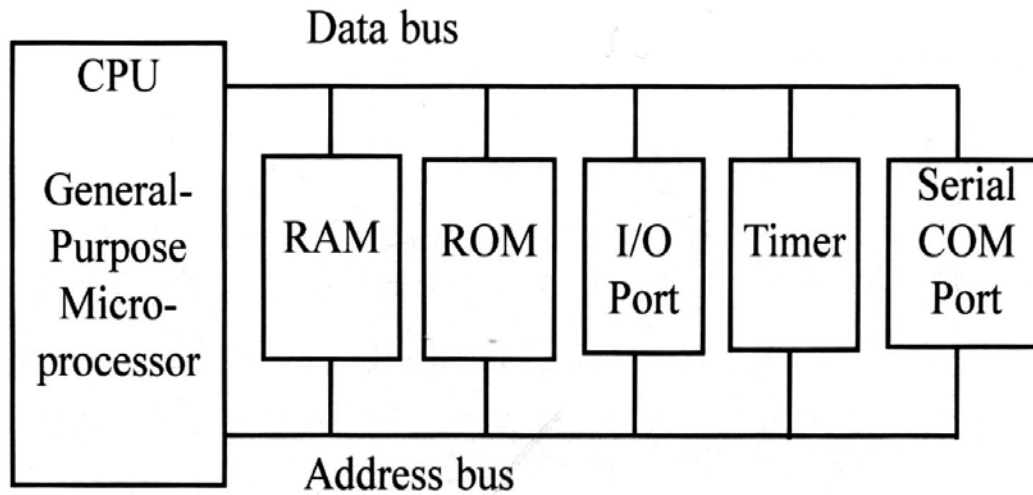
MICROPROCESSOR

- **Microprocessor is heart of Computer system**
- **It is just a processor. Memory and I/O components have to be connected externally.**
- **Since memory and I/O components are all external, it is relatively slower.**
- **Microprocessors are based on von Neumann model/ architecture.**
- **Cost of the entire system increases.**
- **Microprocessor have less number of registers**

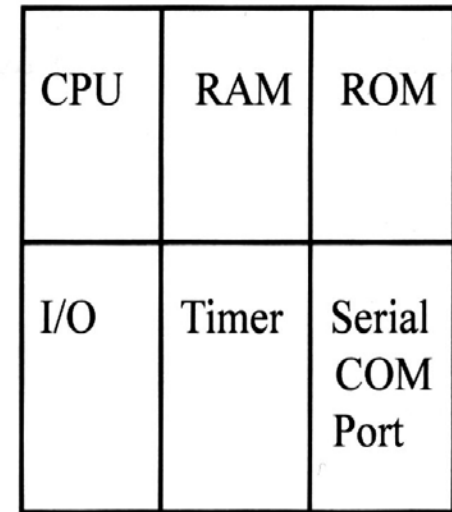
MICROCONTROLLER

- **Micro Controller is a heart of embedded system.**
- **Micro controller has internal memory and I/O components.**
- **Since memory and I/O components are all internal, it is relatively faster.**
- **Micro controllers are based on Harvard architecture.**
- **Cost of the entire system is low.**
- **Micro controller have more number of registers**

A DESCRIPTIVE BLOCK DIAGRAM OF MICROPROCESSOR & MICROCONTROLLER



(a) General-Purpose Microprocessor System



(b) Microcontroller

8051 ARCHITECTURE

- The 8051 is an 8-bit processor
- 128 bytes of RAM
- 4K bytes of on-chip ROM
- Two timers each of 16 bits
- One serial port
- Four I/O ports, each 8 bits wide
- 8 bits program status word (PSW)
- Oscillator and clock circuits
- 4 register banks where each has 8 registers
- 21 SFRs (Special Function Register)